Space Weather Forecast

Issued on Saturday 23 November 2024 at 12:30 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate Solar Activity

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate with two Moderate-class flares, one from each of the regions near the southeast limb. These are the most complex regions on the disc, with the southernmost one potentially having a complex mixed magnetic polarity structure although this is impossible to confirm due to its viewing angle. The other regions on the disc are all smaller and simpler.

No Earth-directed CMEs (coronal mass ejections) were observed.

Solar Wind / Geomagnetic Activity: Slow wind regime persisted through the period. Solar winds speeds were background to slightly elevated. Interplanetary Magnetic Field, was Weak to Moderate. The north-south component was also Weak to Moderate and variable in direction. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) became enhanced on 21 Nov, and briefly peaked at S2 Moderate Solar Radiation Storm early on 22 Nov. These then eased through the day, easing below the S1 Minor Radiation Storm level by 22/2035 UTC, and then to background by the end of the period.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with a chance of isolated Moderate-class flares and a slight chance of Strong-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Slow wind conditions are expected to dominate, but with a chance of spells of slightly elevated solar winds if Earth encounters the fast winds from a couple of small coronal holes. This is most likely to occur on day 2 (24 Nov). Geomagnetic activity is expected to be Quiet to Unsettled overall, but with a chance for spells of Active, mainly day 2 (24 Nov).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

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Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	60	60	60
Very Active	R3-R5 (X Class)	No	10	10	10	10

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	Yes	5	5	5	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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